

November 13, 1997

Mr. Jerry M. Conley  
Acting Site Office Manager  
U.S. Department of Energy  
DOE Site Office  
12000 Jefferson Avenue  
Newport News, VA 23606

Dear Mr. Conley:

**JEFFERSON LAB RESPONSE FOR THE SECRETARIAL INITIATIVE  
ON THE HANFORD FACILITY EXPLOSION**

This letter and the enclosed information are the Jefferson Lab response to the Oak Ridge Operations Office (ORO) request for information on Jefferson Lab's actions related to the Hanford facility explosion. The DOE followup activity to the Hanford facility explosion contains four broad initiatives that are listed below.

- DOE site contractors must scrutinize their use or storage of any chemicals that have the potential for explosion, fire, or significant toxic release;
- Facility operators must evaluate for new vulnerabilities on a continuing basis;
- DOE and contractor field organizations must assess technical competence of their staff; and
- DOE field must assess their site Lessons Learned and Occurrence Reporting programs.

The enclosed information on Jefferson Lab actions related to the four Hanford facility explosion initiatives has been developed using a graded approach. A graded approach has been determined to be appropriate based on Jefferson Lab's limited chemical activities ("Small Quantity Generator" status for hazardous waste), the absence of legacy wastes/inactive chemical processes.

Mr. Jerry M. Conley  
Acting Site Office Manager

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This recent review reached the same conclusion as the 1995 Jefferson Lab review. Both reviews determined that Jefferson Lab does not have existing vulnerabilities and that current practices permit identification of vulnerabilities similar to those leading to the Hanford facility explosion.

Our staff looks forward to presenting updated information on Jefferson Lab followup activities to the Hanford facility explosion during the January 22, 1998 ORO site visit.

Please contact me at extension 7007 if there are any questions.

Sincerely,

Carter B. Ficklen  
Environment, Health, and  
Safety Reporting Manager

Enclosure

cc: H. Grunder C. Leemann  
L. Cardman R. Sundelin  
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EH&S Rptg.:LtrCF97:[Response;ORO,HanfordFacilityExplosion]:bb

## **JEFFERSON LAB STATUS REPORT FOR KNOWN VULNERABILITIES**

### **Introduction**

Jefferson Lab (formerly CEBAF) developed a Chemical Safety Vulnerability Management Response Plan in June 1995. This document was in response to the 1994 DOE Chemical Safety Vulnerability Working Group Report. The 1994 report noted significant chemical vulnerabilities at a number of DOE facilities and laboratories. The June 1995 Jefferson Lab response plan report found no areas of vulnerability requiring further actions beyond current practices.

The May 1997 Hanford facility chemical explosion was the catalyst for a major DOE Secretarial directive to all DOE complex elements. This directive requires documentation and verification of appropriate actions to prevent similar accidents throughout the DOE complex.

Jefferson Lab actions in response to the Secretarial directive's four initiatives are provided below.

**SECRETARIAL INITIATIVE ONE: DOE site contractors must scrutinize their use or storage of any chemicals that have the potential for explosion, fire, or significant toxic release.**

### **Jefferson Lab Status**

Chemical usage in support of the laboratory's mission is minimal. Small quantities of various hazardous chemicals do exist in a variety of locations throughout Jefferson Lab. In addition to limited uses of acids, quantities of solvents such as isopropanol, acetone, and, to a lesser extent, methanol and 1,1,1 trichloroethane are used.

Jefferson Lab maintains only minimum quantities of chemicals needed in its work areas. Flammable and corrosive storage cabinets are provided where appropriate. Secondary containment is required for all hazardous materials. To protect the environment, covers have been placed over floor drains present in the immediate area where hazardous materials are in use. Bulk chemical supplies are stored in a separate facility which has its own secondary containment. Fire detection and/or suppression is present in all areas where hazardous

chemicals are used or stored. Jefferson Lab requires chemical storage areas to be locked when unattended.

Jefferson Lab's hazardous waste status as a Small Quantity Generator is further evidence of the limited role that chemicals play in the Lab's mission. However, the limited chemical use at Jefferson Lab is controlled by the appropriate Jefferson Lab EH&S Manual chapters. These chapters define the responsibilities of line organizations for chemical safety and responsible chemical management throughout the life cycle of these chemicals. A combination of engineering and administrative controls is used for chemical management as appropriate.

**SECRETARIAL INITIATIVE TWO: Facility operators must evaluate their facilities and operations for new vulnerabilities on a continuing basis.**

**Jefferson Lab Status**

Jefferson Lab's evaluation process for facility and operations is based on the philosophy that environment, health, and safety (EH&S) must be an integral part of the work in order to be effective. This philosophy, and the principle that line management is responsible for the EH&S-related aspects of their functions, are the basis for the Jefferson Lab Integrated Safety Management System (ISMS) Plan. The Lab's ISMS Plan provides a convenient roadmap for Jefferson Lab's EH&S system. This system defines responsibilities and roles for implementing an evaluation program to monitor the effectiveness of operations and facilities.

The Jefferson Lab system provides for an effective continuing evaluation program by combining industrial hygiene monitoring, chemical procurement controls, annual facility chemical inventories, and an effective waste minimization program. This system is also designed to identify and evaluate new vulnerability. Additionally, Jefferson Lab conducts semi-annual hazardous materials "roundups" to collect obsolete and unneeded chemicals. Jefferson Lab is a relatively new facility on a "green site" with no legacy wastes or inactive chemical processes.

**SECRETARIAL INITIATIVE THREE: DOE and contractor field organizations with operational responsibilities must assess the technical competence of their staffs.**

**Jefferson Lab Status**

Jefferson Lab's ISMS Plan emphasizes the need for staff to possess the experience, knowledge, skills, and abilities that are necessary to perform their assigned work. This need is satisfied by several EH&S Manual chapters on training and work hazard analysis. Additionally, the Human Resources Department maintains an easily accessed computer-based Training Data Base documenting EH&S training of all staff.

Jefferson Lab chemical handlers receive hazard communication training, mandatory fire safety training, and supervisory training on chemical specific hazards involved in the work task. Many of the chemical handlers at Jefferson Lab also serve as volunteers on the Chemical Assistance Team and consequently have had the 40-hour HAZWOPER training under 29 CFR 1910.120. They also receive RCRA hazardous waste management training and DOT hazardous materials training under the HM 126F Rule.

Additionally, Jefferson Lab has three experienced industrial hygienists (two with American Board of Industrial Hygiene certification, and the other holding a Master's Degree in industrial hygiene) providing direct support of line organization chemical activities. Two other EH&S staff members (one is a Certified Safety Professional) with substantial industrial hygiene experience, are also available for line organization support.

#### **SECRETARIAL INITIATIVE FOUR: DOE field offices must assess their Lessons Learned and Occurrence Reporting programs**

Jefferson Lab's Lessons Learned program is an important part of the Lab's Occurrence Reporting Plan. Lessons Learned information is provided to a broad range of staff on a quarterly basis. This information uses material from a wide range of DOE sources such as the Operating Experience Weekly Summary, the Office of Defense Programs Lessons Learned publications, the ORO Lessons Learned Server, the Office of Energy Research, the Noncompliance Tracking System, and the Society for Effective Lessons Learned Sharing. Non-DOE sources are also reviewed including the National Safety Council, Health Physics Society, Consumer Product Safety Commission, American Industrial Hygiene Association, OSHA, and the American Society of Safety Engineers.

Lessons Learned information is also provided to appropriate staff more frequently than quarterly when that information is determined to be of special interest. Recent examples of special interest Lessons Learned information were the May 1997 DOE Safety Alert on the Hanford facility explosion, and the June 1997 DOE Safety Notice on incompatible chemicals. These materials were provided to appropriate Lab staff prior to current DOE followup activities.

#### **Summary**

The June 1995 Jefferson Lab Chemical Safety Vulnerability Management Response was reviewed as recommended by the May 1997 DOE Safety Alert on the Hanford facility explosion. The Jefferson Lab review made the following determinations:

- Plan included in the response still appropriately addressed Jefferson Lab activities
- Slight reduction in overall chemical use was noted due to waste minimization program

- Existing DOE/Jefferson Lab contract contains EH&S performance measures for hazardous waste avoidance, chemical exposure avoidance, and environmental incident avoidance
- Jefferson Lab’s program of annual chemical inventories and semi-annual hazardous materials “roundups” serves to identify and eliminate any existing or potential chemical vulnerabilities

**Conclusion -** This recent review noted that there are no existing Jefferson Lab vulnerabilities. The review also confirmed the existence of appropriate current practices that would preclude significant vulnerabilities.

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